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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,134	12/05/2001	Kouichi Anno	HITA.0122	1897

7590 11/10/2003

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EXAMINER	
DUONG, THOI V	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/002,134	ANNO ET AL.	
	Examiner	Art Unit	
	Thoi V Duong	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This office action is in response to the Response and Amendment filed October 10, 2003.

Currently, claims 1-13 are pending in this application.

Response to Arguments

2. Applicant's arguments with respect to the rejection(s)of claim(s) 1-13 under USPN 6,407,784 B1 of Kanou et al. have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Jang et al. (USPN 6,522,375 B1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanou et al. (USPN 6,407,784 B1) in view of Jang et al. (USPN 6,522,375 B1).

As shown in Fig. 3, Kanou discloses a liquid crystal display device 70 comprising:

a pair of substrates 35A, 35B which are arranged to face each other while inserting liquid crystal 14 therebetween, to respective liquid-crystal-side pixel regions formed on one of the substrates, pixel electrodes 74 which reflect an external light incident through the other substrate are provided, the pixel electrodes are formed such that protruding portions 73 are scattered on surfaces thereof and respective protruding

portions are provided in two or more kinds which are different in shape from each other when the pixel electrodes are viewed in a plan view, and the protruding portions formed on the surfaces of the pixel electrodes are formed of island-like multi-layered material layers which are positioned at the lower layer sides of the pixel electrodes,

wherein among the island-like multi-layered material layers, there exist layers which are different in the number of layers (col. 10, lines 28-31);

wherein among the respective island-like multi-layered material layers, there exist multilayered material layers whose taper angles provided to the side walls thereof are different from each other as shown in Fig. 11;

wherein the island-like multi-layered material layers are formed of inorganic material (col. 11, lines 4-5) which is identical with material of other constituents elements positioned as layers below the pixel electrodes;

wherein an organic material layer 30 or a sequentially laminated body made of inorganic material and organic material (col. 13, lines 57-59) is inserted between the pixel electrode and the island-like multi-layered material layer;

wherein the liquid crystal display device further includes a plurality of gate signal lines 27 which are formed on the liquid-crystal-side of one substrate, and a plurality of drain signal lines 22, 21 are formed on the liquid-crystal side surface of one substrate such that the drain signal lines intersect the gate signal lines, the pixel regions are regions which are surrounded by the gate signal lines which are arranged close to each other and the drain signal lines which are arranged close to each other, the pixel regions are provided with thin film transistors which are driven with the supply of

scanning signals from the gate signal lines at one side, the pixel electrodes 74 receive video signals from the drain signal lines 21 at one side through thin film transistors, and the island-like multi-layered material layer is formed of a laminated body made of at least two material layers selected from a material layer which is made of material equal to material of the gate signal lines 27, a material layer which is made of material equal to material of gate insulation films 18 of thin film transistors, a material layer which is made of material equal to material of the drain signal lines 22. 21, a material layer which is made of material equal to material of a protective layer 28 which covers the thin film transistors;

wherein each pixel electrode 74 is formed on the whole of each pixel region (Fig. 3);

wherein each pixel electrode 74 is formed only above a region where the projections are formed (col. 12, lines 30-32); and

wherein the protective film includes organic material or a sequentially laminated body made of inorganic material and organic material (col. 11, lines 4-5).

Finally, as shown in Figs. 3, 7 and 11, the layer 30 of island 5, which is a part of each island-like multi-layered material layer, has the center position offset from the center position of the shape of other layers of the protruding portion 73.

Kanou et al. discloses a liquid crystal device that is basically the same as that recited in claims 1-13 except that the respective protruding portions are not different in shape when the pixel electrodes are viewed in a plan view. As shown in Figs. 2 and 3, Jang et al. discloses a reflection type liquid crystal device comprising a pixel electrode

118 which includes a plurality of convex polygons 118a and 118c, each of which has shapes and sizes different from each other (col. 4, lines 37-46) so as to maximize the reflectivity and also minimize non-homogeneous alignment (co. 2, lines 36-48). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display device of Kanou et al. with the teaching of Jang et al. by forming the protruding portions in two or more kinds which are different in shape from each other when the pixel electrodes are viewed in a plan view to maximize the reflectivity of the display. Moreover, it would have been an obvious matter of design choice to modify the liquid crystal display device of Kanou et al. since such modification would have involved a mere change in the shape of the protruding portions to maximize the display reflectivity as taught by Jang et al..

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong

11/04/2003

ROBERT H. KIM
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